Facilities Quarterly

ERNEST ORLANDO LAWRENCE BERKELEY NATIONAL LABORATORY ♦ FACILITIES DIVISION NEWSLETTER

JULY
2004

BIG C SUB SCRAPPED

A small but important piece of Berkeley Lab history will soon disappear from the landscape when the Big C Substation is demolished this month. Originally constructed in the early 1950s to supply 12kV power to the Bevatron, Big C expanded with the Lab, ultimately supplying power not only to the Bevatron but to most of the Lab south and west of Building 6.

LBNL perimeter fence separates Big C (lower right) and Big C Sub (upper left)

"It was the workhorse of the southern part of the Hill," says Electrical Shop Coordinator George Ames, adding that, toward the end of its 40-year lifetime, it was definitely showing its age. In the 1990s, while a major effort was underway to upgrade the 12kV electrical system, Ames and his fellow electricians "had our fingers crossed," hoping that Big C would hang in there until it was no longer needed.

"Big C is where we had most of our problems," recalls Ames. Those problems included about half a dozen "explosive" electrical faults—short circuits within the switching station. These incidents were caused by moisture problems or by "varmints" that found their way into the station. On one occasion, Ames arrived at the substation to find a metal door ajar and one of the heavy steel bars, meant to hold the door shut, bent at a 90-degree angle. Inside, crystallized glass and melted rivets attested to the energy released when a rat completed an electrically conductive path as it stepped from one live terminal to another.

The shutdown of the Bevatron in 1992 lightened the load that Big C had to carry. In 2000, the new Blackberry Switching Station, the last of six new switching stations constructed for the 12kV

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SAFETY CORNER: WOW Attends Convention

The Facilities Division's Workers Observing Workers (WOW) program took its show on the road in February when the steering committee attended the Behavioral Science Technology, Inc (BST) Annual Users Conference at the Gaylord Opryland Hotel in Nashville. The conference, whose theme this year was "navigating to an injury-free culture," was an opportunity to show what Berkeley Lab has done to improve workplace safety and to network with some 2600 attendees from a broad range of industries as well as from government and academia.

Berkeley Lab's participants, Wanda Haskett, Evelyn Lee, Dan Girlington, Harry Bash, Greg Seaman, Kathy Eidson, Steering Committee Chair Tom Bennett, and Facilities Safety Coodinator Janice Sexson, tended one of 140 booths on the opening day's poster session. The Berkeley Lab booth featured some of the picture stories that have been displayed on WOW bulletin boards around the Lab, and some photos from the WOW fashion show. Janice Sexson describes the poster session as a "great opportunity for networking and to see how others handle problems."

The remaining two days of the conference were devoted to courses that covered the full range of activities involved in operating a behav-

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INSIDE

Facilities Quarterly is available online at http://www.lbl.gov/Workplace/Facilities.

BIG C *continued from page 1*

upgrade, came online, taking over all of Big C's functions except for power factor correction. Finally, a year ago, completion of about 15 new 480kV capacitor banks ended Big C's career, and the station was deenergized and, recently, disconnected from the grid.

Since then, the electricians have drained the transformers of their insulating oil, which contained PCBs and was disposed of as hazardous waste, and removed spaghetti coils of electrical cable from the trench under the substation. Demolition will remove all traces of the station except two manholes that access still-usable conduits. The site will then be graded to the natural slope.

Big C Substation is named for the giant-sized letter "C," located just downhill, that brands the hillside overlooking UC Berkeley's Memorial Stadium. In bygone times, on nights before major football games, Big C Substation would provide illumination for its namesake by means of an extension cord thrown over the fence—an apt symbol of the can-do spirit that kept Big C Substation online for almost 50 years.

FROM THE DIVISION DIRECTOR...

As we enter the final quarter of FY2004, there are a lot of visible reminders of ongoing Facilities activity, including the Building 90 Ventilation Renovation, Genomes to Life laboratory remodel in Donner Laboratory, the newly cleared Bldg. 51 EPB Hall site, and, of course, the large hole in the ground that will become the Molecular Foundry. In addition, the Riggers will soon take delivery on a new 60-ton Terex all-terrain crane. This is a very capable piece of equipment that's designed to function on the confined jobsites we have on the Hill. It replaces a rental crane that we've had since 1999 and gives us new capacity to support a range of construction, operations and emergency applications.

Meanwhile, the Facilities Division continues to make the transition to a new organizational structure. In April and May we filled two important positions with the addition of two new department heads: Steve Black in Plant Operations and Jerry Ohearn in Design and Construction. Many of us have already seen the impacts of their recent arrivals. Their efforts will be key in reshaping Facilities to provide the improvements in communications, processes, and service deliveries needed to support the Laboratory's evolving scientific mission.

While our restructuring efforts have a ways to go yet, there are signs that we are headed in the right direction. For example, the Operations Directorate's Customer Survey results show that, according to scientific division directors, deputy directors, and principle investigators, Facilities services have improved in every category: quality of service, timeliness, cost, communications, innovations, and, most impressively, support of mission, where we received the highest rating.

Our performance has improved in terms of safety, too, with a 14-percent reduction over last year in our accident rate, and an 11-percent reduction in days lost due to work-related injury. This translates into a reduction in both the number and severity of accidents, giving Facilities an overall "yellow" rating—not great, but it's the first time ever that we haven't been rated in the red. So let's keep up the good—and safe—work!

As we bid farewell to Dr Shank and welcome new Director Steven Chu, Berkeley Lab is truly on the brink of a new era—one which Facilities as an organization is preparing for through our restructuring efforts. As we enter this new era let each of us as individuals also set new, higher goals for service to the Laboratory and a safer place to work.

George Reyes

WOW *continued from page 1*

ior-based safety program, such as workplace observation and feedback, removing barriers to safe behavior, steering committee and facilitator effectiveness, and safety training skills. According to Sexson, steering committee members came away from the courses "reenergized and refocused, with a clearer idea of what to do—of the big picture."

Tom Bennett agrees that the conference was a success. "People were impressed with our progress," he says. Bennett came away with a list of ideas he hopes to pursue, such as networking with other BST clients in the Bay Area, encouraging health and fitness, and trying to make the work of being safe more fun, through events like this summer's pizza party.

Like the other attendees, Berkeley Lab is a client of BST. Headquartered in Ojai, California, BST provides consultation, educational media, and training in their proprietary behavior-based safety program. The objective of a behavior-based safety program is to make safety an integral part of the workplace culture—something we practice as part of our jobs. Berkeley Lab's largely home-grown WOW program began in 1997 with the creation of a steering committee made up of volunteers from Facilities crafts and technical groups. The steering committee developed the "checklist" of "critical behaviors" that is used in the observation phase of the program. The checklist's critical behavior cat-

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AT YOUR SERVICE

FOCUS ON SERVICE: Transportation

If you work on the Hill, then you've seen them: the 40-foot semis or the 70-foot-long trailers wending their way slowly along Cyclotron Road. You might wonder where they're heading or what they're carrying. You might also ask yourself how much Transportation Services has contributed to the success of Laboratory science over the years. You will be impressed by their long record of excellent customer service.

Being part of a multidisciplinary national laboratory, the Lab's scientists often work with very expensive, sensitive, and often unwieldy equipment, such as telescopes or gene sequencers, that often need to be disassembled, crated up, shipped to another lab, and then reassembled. To get the job done correctly and cost-efficiently, most scientists on the Hill, along with others at the Joint Genome Institute (JGI), in nearby Walnut Creek, or Lawrence Livermore National Laboratory, seek the expertise and good value of Transportation Services when it comes to handling their million-dollar babies.

Over the last couple of years, Transportation Services has had to move equipment used for the Human Genome Project from Building 400 to 100 at the JGI, and from Berkeley and Livermore Labs to the JGI, including a $20–35 million sequencer and at least 30 Tecan robotic instruments, which are worth about $150,000 each. The drivers involved were specially trained to secure the crated items destined for the JGI from Livermore or Berkeley. To prepare for the move, drivers met with scientists to discuss what features of the equipment needed additional protection. The drivers then added extra padding, blocked out the sequencer, and used an air-ride suspension truck to minimize unexpected bumps along the way.

When Lab scientists hand a job over to Transportation, many feel the comfort of knowing that they're working with professionals who understand why a piece of very sensitive and very expensive equipment needs special handling. For example, Transportation has also moved telescope equipment to the Mt. Wilson Observatory in the San Gabriel Mountains of Southern California. For one trip alone, the Transportation crew had to haul two 70-foot-long trailers specially built to carry reflection mirrors for a U.C. Berkeley telescope. Because Mt. Wilson has special landings that lead to the telescopes, the Transportation crew had to use come-alongs and chains to move a trailer to its targeted spot.

Another longstanding, high-profile project supported by Transportation Services is the Spallation Neutron Source (SNS), a $1.4 billion project located at Oak Ridge National Laboratory. Berkeley Lab designed and built the front-end system, which was stored in Building 71 and is one of the SNS's five major components. When the front-end was completed and commissioned in summer 2002, Transportation disassembled the system and prepared it for shipment to Oak

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COMPLIMENTS

Dr William Stringfellow describes as "outstanding" the work done by Facilities in constructing his laboratory in Building 70A, rooms 2235 and 2245. The project team worked closely with Dr Stringfellow and his staff to create a laboratory that was "well thought out and makes full use of the space available to us." Architect Kathy Milano was " very patient and took the time to really understand our research needs. Her attention to detail and hard work resulted in a functional and attractive laboratory design, and we are very pleased with the outcome." Project Superintendent Tipasa Samatua "did an out standing job of supervising the renovation. He communicated well with me as the renovation progressed…. He was very responsive, returned all calls, resolved all problems immediately, and conducted himself in a pleasant and professional manner at all times." Project Manager Bill Wu "was completely involved in the project from the first day and maintained his involvement throughout the project.…This lab is now a showcase for my department and division."

WORK REQUEST CENTER

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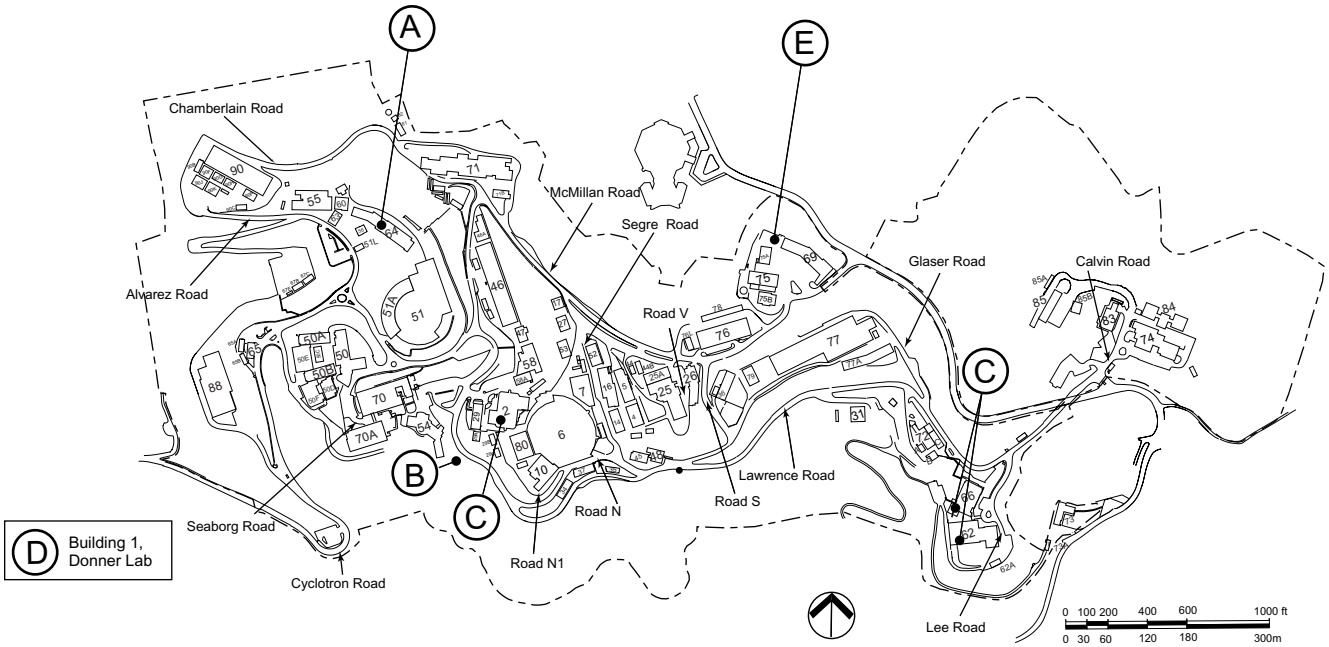
WRC welcomes questions or comments about Facilities Quarterly.

CONSTRUCTION AND YOU

Current construction projects affecting parking, or vehicular or pedestrian circulation



Project Contacts. The name in parentheses after each project is the Project Manager (PM) or other person who is responsible for project oversight: coordinating all phases from design through construction; controlling cost, scope and schedule; and ensuring client satisfaction. This person will be happy to answer any questions about the project.

(A) Bldg 64: Addition of Labs and Offices

JUL	AUG	SEP

Construction of labs and offices will impact access to Bldg 64 and areas to the east and west. Occasional obstruction of traffic may occur. (Bill Wu, x5216)

(B) Big C Substation Demolition

JUL	AUG	SEP

Demolition activities will impact parking and access in the area. Parking spaces along Lawrence Rd will be closed temporarily and several spaces in Lot Z will be closed to be used as an equipment staging area. Periodic one-way traffic controls will be used on Lawrence Rd and Glaser Rd to allow equipment access to the site and cable removal. (Dan Galvez, x6213)

Bldg 72, 62, 66: Molecular Foundry Ramp-up Proj- (C)

JUL	AUG	SEP

Construction will impact access to Buildings 72, 62, and 66. (Bill Wu, x5216)

Bldg 1: Genomes to Life Lab (D)

JUL	AUG	SEP

Construction is in progress on the second and fourth floors. Occupants may be inconvenienced at times. (Bill Wu, x5216)

Bldg 69: Retaining Wall and Walkway (E)

JUL	AUG	SEP

The Building 69 parking lot retaining wall and emergency egress walkway behind the building will be replaced. Several parking spaces will be closed off during construction, and the entire lot will be closed off periodically during construction. (Dan Galvez, x6213)

"CAUTION—CONSTRUCTION AREA"

Construction barricades and warnings are there for your protection. Under no circumstances should you cross a construction barricade, or disobey posted warnings or directions. Contact the Project Manager for escorted access to construction areas.

ON THE DRAWING BOARD

projects in study or conceptual design

Animal Care Facility

A new building of approximately 11,000 sq ft (1,000 sq meters) is being planned for a site in the Life Sciences Research Cluster in the East Canyon. The building will contain space for animal holding and support functions. This project is proposed for GPP funding in FY 2005 and FY 2006. (Richard Stanton, x6221)

User Support Building

This 30,000-sq-ft (2800-sq-meter) building will be located on the current site of Building 10. The project will be double the size of Building 10 and provide modern research support space and offices. Currently, the project is included in the DOE FY-2005 funding cycle, with a planned occupancy in FY 2008. The building will support researchers at all of LBNL's User Facilities and provide additional staging area for ALS experiments. (Richard Stanton, x6221)

IN PROGRESS

funded projects

Bldg 1: Genomes to Life Lab

Funded in FY 2004, this project will relocate Genomes to Life administrative, Computational BioSpice bench experimental, and Hildebrand Hall staff to second and fourth floor offices in Donner Laboratory. Work includes replacing fume hoods, utilities, and sprinklers; refurbishing benches; lighting and flooring; and HVAC. (Bill Wu, x5216)

Bldg 64: Addition of Labs and Offices

This project will build out the last high-bay space in Building 64, creating additional laboratories and office spaces. The scope includes addition of a second floor, a new elevator, and rearrangement of exit paths. Design is complete and the construction contract has been awarded. (Bill Wu, x5216)

Building 77: Rehabilitation of Building Structure and Systems, Phase 2

This project will correct mechanical, electrical, and architectural deficiencies in Buildings 77 and 77A. Design is underway. (Marty Baron, x4135)

Bldg 90: HVAC Upgrade Project

This project used a technology invented by EETD scientists to seal leaks totalling approximately 10,000 cubic feet per minute (cfm) in the building HVAC system. Cooling additions are underway and will continue through late spring. Building occupants will be kept fully informed of project activities through a variety of means. (Marty Baron, x4135)

Molecular Foundry

Berkeley Lab's newest User Facility, the Molecular Foundry, will be constructed near the Building 72 complex. It will consist of a research building of about 89,000 gross sq ft (8,300 gross sq meters) and a utility center of about 6,000 gross sq ft (560 gross sq meters). The research building will have state-of-the-art clean rooms for the design, modeling, synthesis, processing, fabrication, and characterization of novel molecules and nanoscale materials. Offices and laboratories will support nanoscale research in materials science, physics, chemistry, biology, and molecular biology. Construction of the Molecular Foundry began in December 2003. The shoring wall experienced some settlement in late May, but this was arrested by installation of some underpinning. Monitoring of the wall shows essentially no settlement of the shoring since then. The building foundations will be constructed this summer. Installation of waterproofing and a 12-in. shotcrete facing wall over the shoring will take place in the fall. See the Foundry Construction Project website at http://fac.lbl.gov/foundryproject/ for up-to-date information.
(Joe Harkins, x7486)

Molecular Foundry Ramp-up Project

This project will provide interim space for Molecular Foundry nanoscience research until the Molecular Foundry is complete. Work involves renovation of labs in Buildings 72, 62, and 66.
(Bill Wu, x5216)

WOW Committee

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egories include body use, personal protective equipment use, following of procedure, tool use, and adjustments to physical limitations and weather conditions. Every month, employees are observed on the job for 15-20 minutes by another employee who has been trained in proper safety behavior. The observed employee's name doesn't appear on the score sheet, but he or she receives constructive feedback from the observer.

In its initial stages, the WOW program focused on getting employees to take ownership of the task of maintaining a safe workplace. The observation process was effective in identifying ingrained unsafe practices, such as not wearing safety glasses, and the program was almost immediately successful, recovering an initial investment on $230,000 in just over seven months. In the years since, the program has achieved a return on investment of over 280 percent. "More importantly," says Sexton, "WOW has worked hard to change the safety culture in Facilities. Bennett agrees that the program has "broken through barriers and developed rapport between the observers and workers, and reinforced positive safety behavior in the workplace."

Now that WOW is a mature program, maintaining focus and interest among all participants is an important concern. In an effort to develop leadership skills, every year WOW sends one steering committee member to a facilitation training workshop at BST's offices in Ojai. The training covers a range of facilitation skills, such as planning and conducting meetings, team building, presenting, coaching, communicating, and time management. This year, members David Roof and Greg Seaman will be attending the course. Two years ago, committee chairman Tom Bennett attended the four-day session, honing his skills in initiating and developing safety programs, getting other people involved, and training additional facilitators.

Bennett returned from Ojai with a notebook full of ideas to infuse new energy into the WOW program, although implementing them at the Lab faces some hurdles. As Bennett explains, "our funding is restricted when it comes to some of the fun things that other companies can do—we can't even do brunches. So we need to figure out more creative ways to keep people energized." Some events planned for this year include a safety walkaround, a Christmas party, and, of course, a reprise of the WOW Fashion Show.

Transportation

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Ridge. In true Berkeley Lab fashion, Transportation coordinated with the Carpentry Shop to build customized crates for the dismantled system, ultimately requiring 15 truck-loads for shipment.

Transportation Services continues to support big projects involving other national laboratories. For example, Transportation supported the Lab's participation in a project to build one of two linear induction electron accelerators for the Dual Axis Radiographic Hydrodynamic Test (DARHT) facility, at Los Alamos National Laboratory, by moving approximately 90 inline capacitors from Building 77 to Building 51 over a period of approximately two years. According to Transportation Lead Kevin Haugh, Transportation will provide its services for a DARHT model update within the next year.

Besides being able to accommodate any aspect of moving large, multicomponent equipment, Transportation owes much of its success to its commitment to safety. According to Don Prestella of Site Services, nine of Transportation's 11 drivers are hazmat certified per the U.S. Department of Transportation, and all 11 drivers have commercial driver's licenses. The drivers also go through regular drug testing. During fiscal year 2003, Transportation drivers had no accidents, an impressive feat in itself, but even more impressive in light of the Lab's hilly terrain and the drivers' average of 80,000 miles driven per year.

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